UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD PROJECT OFFICE
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0083545

April 4, 1994

Steven H. Wisness
Tri-Party Agreement Manager
U.S. Department of Energy
P.O. Box 550, A5-15
Richland, Washington 99352

Re: Draft Corrective Action Management Unit Application for the Environmental Restoration Disposal Facility 35312

Dear Mr. Wisness:

The U.S. Environmental Protection Agency (EPA) and its contractors have completed the review of the Draft Corrective Action Management Unit Application for the Environmental Restoration Disposal Facility dated March 15, 1994. Enclosed are the combined comments.

Also enclosed is a WordPerfect 5.1 diskette for your convenience.

If you have any questions or concerns regarding these comments, please call me at (509) 376-4919.

Sincerely,

Pamela S. Innis
Unit Manager

Enclosure

cc: Bryan Foley, DOE
Michael Collins, DOE
Norm Hepner, Ecology
Jeff Ross, PRC
Bill Lum USGS
Cathy Massimino, EPA
Vern Dronen, WHC
Mike Casbon, WHC
Becky Austin, WHC
Administrative Record (ERDF File)

INTRODUCTION

The U.S. Environmental Protection Agency and their contractors have completed a technical review of the Draft Corrective Action Management Unit Application for the Environmental Restoration Disposal Facility, dated March 15, 1994.

In the corrective action management unit (CAMU) application, as specified in 40 CFR 264.552(d), the owner/operator shall provide information that includes the requirements of 40 CFR 264.552(e). With this application, the regulatory agencies may designate a CAMU at the facility in accordance with the decision criteria specified in 40 CFR 264.552(c). The application information must enable the agencies to document the rationale for the CAMU designation, as required by 40 CFR 264.552(f).

Deficiencies and issues regarding the draft CAMU application are discussed by section in the following comments. References used in this review are also listed.

FORWARD

Forward, pg. iii, first paragraph: The term "dangerous waste" is used to describe the non-radioactive component of mixed waste. Hazardous waste, as defined under CERCLA, should be used in this definition.

SECTION 1.0

GENERAL COMMENTS

U.S. Department of Energy (DOE) requirements for low-level radioactive wastes (LLW) and mixed wastes, as described in DOE Order 5820.2A, "Radioactive Waste Management," are not adequately addressed. DOE Order 5820.2A requires the following for disposal of LLW:

- Preparation of a radiological performance assessment (RPA)

- Establishment of an auditable program by the generators
- Implementation of a waste certification program by the generators
- Audits of LLW certification programs
- Site-specific closure plans for new and existing operating LLW disposal sites
- An environmental monitoring program that conforms with DOE Order 5484.1
- Waste manifests

Further, specifically the text should address the following requirements of DOE Order 5820.2A, Chapter III, Section 3(a):

- Assure that external exposure to the waste and concentrations of radioactive material which may be released into surface water, groundwater, soil, plants and animals results in an effective dose equivalent that does not exceed 25 mrem/yr [millirem per year] to any member of the public. Releases to the atmosphere shall meet the requirements of 40 Code of Federal Regulations (CFR) 61.
- Assure that the committed effective dose equivalents received by individuals who inadvertently may intrude into the facility after the loss of active institutional control (100 years) will not exceed 100 mrem/yr for continuous exposure or 500 mrem for a single acute exposure.
- Protect groundwater resources, consistent with federal, state, and local requirements.

Although reference to an RPA has been made in the CAMU application, the text does not stress its importance for LLW disposal. These items should be specifically referenced in the text. Overall, the importance of an RPA and establishing specific performance objectives is not adequately addressed. The CAMU application proposes to dispose of contact- and remote-handled LLW and mixed waste in the Environmental Restoration Disposal Facility (ERDF). The CAMU application does not adequately discuss the radiological source term and does not clearly demonstrate that disposal of these wastes in the ERDF will not adversely affect human health or the environment. DOE Order 5820.2A requires completion of performance objectives and an RPA to ensure migration

of radionuclides do not threaten human health or the environment. This critical issue should be reevaluated.

SPECIFIC COMMENTS

Section 1.1, pg. 1-2, third paragraph, last sentence: The preliminary design of the CAMU will be determined during the RI/FS process. Definitive design will not be complete until after the issuance of the RI/FS and proposed plan, and the completion of the ROD.

Sections 1.2.5 and 1.2.6, page 1-4. The text refers to RCRA requirements for hazard prevention and contingency plans; however, DOE requirements are not addressed. For disposal facilities, DOE generally requires the development of a hazards assessment document (HAD) and a safety analysis report (SAR). The HAD provides a way to determine the hazard classification of a given unit as specified in DOE Order 5500.3A. The SAR is used along with the RPA to determine radiological waste acceptance requirements. The text should address these issues, and specifically discuss the radiological source term, and associated potential hazards.

Table 1-1. Table 1-1 only references applicable RCRA regulations for the Hanford Site CAMU. The following requirements should be added to the Table 1-1 outline sections:

Section	Requirement
3.2	DOE Order 5820.2A - Requires radiological characterization and/or analysis for disposal.
4.10 and 4.11	40 CFR 61 - Radioactive emissions must conform to these requirements.
5.5	DOE Order 5400.5 - Requires development of groundwater monitoring program.
11.0 and 11.1	DOE Order 5820.2A - Requires that all LLW disposal facilities prepare closure documentation.

SECTION 2.0

Section 2.1.2.1, pg. 2-2, first paragraph: The area described has been referred to as the 200 Area Plateau and the Central Plateau. An alternate description should be used to described the area between 200 East and 200 West.

Section 2.1.2.2., pg. 2-3, second paragraph, last sentence: This sentence refers to the Tri-Party Agreement participants. A complete description should be provided.

Section 2.1.2.2, pg. 2-3, third paragraph, first sentence: The estimate of 30 million cubic yards is a maximum amount. Actual waste volumes are expected to be less. Restate in this sentence and throughout the text that up to 30 million yd^3 may be generated.

Section 2.1.2.2, pg. 2-3, 4th paragraph, second sentence: It may be appropriate to delete this sentence since the estimates for waste generated by 2001 are so diverse.

Sections 2.4.1 and 2.4.2.1, page 2-6 and 2-7. Section 2.4.1 specifies the load-bearing capacities of roadways leading to the ERDF. However, section 2.4.2.1 discusses ERDF-related traffic without estimating traffic loads. The estimated loads associated with tractor and trailer shipment should be included to verify that roadways are adequately constructed for anticipated use from this project.

Section 2.10, pg. 2-9, first paragraph, second sentence: Delete this sentence. The ERDF is being developed under a CERCLA ROD to allow CERCLA waste disposal in the CAMU.

Section 2.10, pg. 2-9, second paragraph: This paragraph is misleading in that it implies that the purpose of a CAMU is to avoid RCRA MTRs and LDRs. The CAMU regulation was written to promote placement of waste in a more protective

and cost-effective manner, providing another option to capping waste in place. The CAMU regulations also note that EPA has a preference for waste treatment before placement.

Section 2.10, pg. 2-9, third paragraph, second sentence: Delete this sentence. The information provided is incomplete in that "potential problems" of a RCRA TSD, other than compliance with LDRs, are not noted. Again, the CAMU rule was not written to make it possible to avoid LDRs and this should not be over-emphasized.

Section 2.11.3.1, pg. 2-12, last paragraph: This paragraph is more appropriately location in Section 2.11.4.

SECTION 3.0

Section 3.0, page 3-1. As addressed previously, CAMU application should be revised to address requirements of DOE Order 5820.2A.

Section 3.1.2, pg. 3-4, first paragraph: Soil concentrations are more appropriately compared to the upper confidence limit of the 90th percentile of the Hanford background soil concentrations.

Section 3.1.3, pg. 3-5, first paragraph, last sentence: The test states that disposal containers will be grouted prior to shipment to the ERDF. Have the ER managers been informed of and accepted this responsibility?

Section 3.2, pg 3-6, first paragraph: The waste analysis plan should provide procedures to characterize radioactive waste as well as hazardous/dangerous waste.

Section 3.2.2, pg 3-7, third paragraph, second sentence: Clarify how visual and radiological verification of the waste will be done if only the exterior of the waste containers is inspected.

Section 3.2.3, page 3-7. This section describes waste shipment, inspection, and verification procedures. Waste containers are to be verified through a review of the accompanying documentation. The information to be recorded on this documentation should be specified.

The text also states that waste containers received at the ERDF will be radiologically inspected. However, it is unclear if this inspection will be performed to monitor surface contamination, radiation dose rate, or both. The text should be clarified to address this issue.

Section 3.2.3.1, page 3-8. The text suggests that some roadways may have public access. If wastes are to be transported on public access roadways, additional U.S. Department of Transportation requirements (found in 49 CFR) should be addressed. At a minimum, waste transfer documentation, such as manifests should include the types and quantities of radionuclides that may be present.

Section 3.2.10, pg 3-11, second paragraph: This paragraph should note the name of the document that will provide procedures for incompatible waste disposal as well as the name of the organization/group that will be providing it. Also the first sentence needs clarification.

Section 3.2.11.1, pg 3-11, first paragraph, third sentence: Clarify this sentence. It is unclear how the "expense of effective and prompt remedial action" assists in overcoming uncertainties associated with waste sites.

Section 3.2.11.1, pg 3-11, second paragraph: Depending on site characteristics and the availability of background information, more extensive sampling of waste sites may be required. Tenet (1) implies that further sampling is simply a study.

Section 3.3.1, page 3-12: It should be clarified in the beginning of this section that the information provided here is general waste acceptance criteria and that more detailed documentation will be provided later.

Also, a criteria concerning moisture content of the materials being considered for placement in the ERDF should be included. Materials with a moisture content exceeding 6-10 percent would greatly increase the risk of contaminated water reaching the water table under the ERDF. Once the contaminated water was in the ground water it could be transported to the accessible environment. Note that the justification for a limit on the content of organic constituents (page 3-14, lines 34-37) is that they could facilitate transport of contaminants, water content has a similar effect on transport potential.

Section 3.3.1, page 3-12, second bullet. The text states that maximum concentration levels have been calculated for wastes that could penetrate the liner system and could pose unacceptable health risks. The text should indicate whether this pertains to hazardous constituents, radionuclides, or both. Specific calculations should be provided to aid the reviewer.

Section 3, page 3-15: The quantity of wastewater from all sources to be disposed of in the ERDF should be carefully monitored so that it does not mobilize waste nor increase significantly the moisture content of the materials in the ERDF.

Section 3.3.3.1, pages 3-15 and 3-16,: During soil remediation activities, small localized areas of contamination greater than 200 millirem-per-hour and greater than category 3 waste could inadvertently be placed in the 24.5 cubic meter (m^3) reusable containers. Depending on the location of the contaminated areas, gamma attenuation of the soil could prevent detection of this waste. Dumping soil in the ERDF trench could result in contamination on the walls of the container. Given this scenario, process knowledge may be inadequate to characterize the decontamination wastewater. The text should also address the way this type of soil dumped in the trench would be managed, since it will be decontainerized and spread out.

Solid wastes generated as a result of waste water treatment may have higher concentrations of some of the more mobile contaminants when compared to the

solid from which the leachate was generated. Sampling of the sludge must be performed to assure that the waste falls within the waste acceptance criteria.

Table 3-3, pages 3-20 and 3-21. This table lists the 100-Area estimated maximum concentrations for the radionuclides. This list includes transuranic (TRU) elements identified at the 100-Area. Section 3.1 indicates that TRU wastes will not be managed in the ERDF CAMU. Section 3.1 should describe the waste identification procedure so that TRU wastes will not be inadvertently accepted.

Also, the text on page 3-2, first paragraph, states that some high-activity waste may be present in the 100 and 300 areas. However, these wastes are not accounted for in Table 3-3. Most of the activity levels are relatively low and appear below minimum detectable levels of most nondestructive assay equipment; radiation levels outside the containers could be very low. The radionuclides expected in the 100 Area are inconsistent and confusing. The reactors in the 100 Area have not operated for many years. Therefore, the reason short-lived isotopes, such as barium-140, cerium-141, cobalt-58, iron-59, and ruthenium-103 would be present is unclear. The longest half-life is about 70 days, and long-lived parents are not present. Conversely, radionuclides associated with major fission products, activation products, and fuel constituents are not shown. It would be expected that additional isotopes present in the radionuclides such as tritium, iron-55, promethium-147, samarium-141, plutonium-241, neptunium-237, and iodine-129 would be likely considered present. In addition, since uranium-238 is in secular equilibrium with thorium-234, the expected activities of these isotopes should be the same. These discrepancies should be addressed.

SECTION 4.0

GENERAL COMMENTS

This section of the CAMU application does not discuss the need or possible use of temporary units (that is, units used 1 year or less) as part of the

overall design and operation of the ERDF CAMU. Ancillary units that may be operated as "generator hazardous waste container storage and tank storage areas," are mentioned in Section 15, but Section 4 contains no further discussion; some units may qualify for and be operated as temporary units. The application should address the regulations regarding the designation and use of temporary units as provided for in 40 CFR 265.553.

SPECIFIC COMMENTS

Section 4.0, pg 4-1, last paragraph: This paragraph describes the format to be used for the CAMU application. The last sentence of this ¶ therefore is redundant and should be deleted.

Sections 4.1 through 4.11, pages 4-3 through 4-5. The text for each section (and throughout Section 4) states that under the CAMU regulations, "the ERDF CAMU is not a hazardous/dangerous waste management unit." This should be more precisely stated; specifically, under the regulations defining the expanded CAMU concept (40 CFR 264.552[a][1] and [2], a CAMU is not considered a land disposal unit or considered a unit subject to the minimum technology requirements for landfills (40 CFR 264.301). However, hazardous and dangerous wastes will be managed within the unit.

It appears that the units specified in each section (i.e., waste piles, surface impoundments, or land treatment units) are not actually anticipated for use as part of the CAMU. The text should clearly identify the anticipated units.

Section 4.12.3, page 4-7. This section provides a general description of the proposed ERDF CAMU trench liner system that will be used to minimize the release of contaminants to the groundwater or surface water during the active life of the unit (e.g., operational life and post-closure period). The operational life and post-closure period, however, should be identified.

This comment is also applicable to Section 4.12.5.5.3.

Section 4.12.3.3.3, pg 4-11, first full paragraph: The design life of the trench should be noted.

Section 4.12.4.2.1, page 4-13. The text proposes a laboratory test for natural moisture content determination with shallow test pit samples. For shallow depths, American Society for Testing and Materials (ASTM) D3017-78 standard is available for moisture content of soils and soil aggregate in place by nuclear methods. This ASTM standard should be considered to determine the in situ natural moisture content for comparative purposes.

Section 4.12.4.4.4, pg 4-18, third paragraph: References should be cited for the seismic studies.

Section 4.12.5.3.2, page 4-25: It should also be noted that waste will be placed in such a way as to minimize drag-down forces at the toe of the side slopes.

Section 4.12.5.5.1, pages 4-28 and 4-29. This section describes specific ASTM tests for the soils at this site. No similar section appears to be present for the high-density polyethylene/geomembrane liner system, probably because such tests have been performed as part of the manufacturing process. However, a section detailing the ASTM criteria for this synthetic liner system should be included. This type of information supports conclusions such as covering the liner system with soil after construction to protect from weathering. This information also may be used to estimate the life of the system after construction.

Quality control criteria for the liner seams should also be clearly stated. The quality of these seams is essential to the integrity of this system.

Additionally, thermal stresses may be important for a fused liner system. The coefficient of thermal expansion should not be so great as to affect performance either during construction or after the project is complete. The few feet of soil to be used as protective cover (before completion) may still

allow a sufficient temperature variation for thermal expansion and contraction to cause stress problems. These problems could put stress on the seams in the liner, possibly causing liner failure. An engineering assessment of the potential for this to occur should be included. Additional features to protect the liner system from thermal stresses may be necessary.

Section 4.12.6.1.2, page 4-37: The potential remediation options include placement of a low hydraulic conductivity layer. Current design indicates that a low permeability layer will be place over the waste as an interim cover. A low permeability cover emplaced as soon as possible after the placement of wastes is essential to fulfill the concept of waste minimization which is a stated goal of the CAMU regulations (see Section 10, this report). If there is no interim cover (before the RCRA compliant final cover is installed) then there would seem to be a significant chance of incident precipitation causing generation of waste-carrying leachate.

Section 4.12.6.1.2, page 4-37: Option three notes that a structure could be built at a lower expense than constructing a new trench. The ERDF CAMU is composed of individual cells with each cell being constructed ahead of time depending on remediation waste projections. A new cell therefore could be available for relocation of waste if necessary.

Section 4.12.7.3, page 4-42: This section references only one QC guidance document to be used in preparation of the QC plan for the ERDF. The guidance document entitled *Construction Quality Assurance for Hazardous Waste Land Disposal Facilities*, EPA 530-SW-86-031, October 1986, should also be used in the preparation of this plan.

Section 4.12.7.4, page 4-42, first paragraph: Specific Westinghouse procedures should be referenced for mechanical system maintenance. Also, how are referenced Westinghouse procedures applied if the operating contractor changes during the life of the facility.

Section 4.12.9, page 4-47. This section discusses controlling wind dispersal using dust suppressants as well as engineering controls. Since waste placement will likely suspend contaminated dusts even if dust suppressants are used, downwind monitoring is advised to ensure that workers are protected and that contamination is not released from the CAMU. Although the regulations (40 CFR 264.552[c][2], 58 FR 8668) state that qualitative assessments of short-term risks are generally sufficient, it also states that "CAMUs cannot create unacceptable risks to human health or the environment from exposure to hazardous waste or hazardous constituents." The risk assessment completed as part of the remedial investigation and feasibility study should indicate whether more quantitative data or monitoring are necessary.

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Section 4.12.13, page 4-50, first and second bullets. The text states that "potentially incompatible wastes will be treated at the ER sites (prior to disposal)," which will eliminate their incompatible characteristics. No discussion or assurance is provided that potentially incompatible wastes, derived from various remediation source areas, will not be mixed within the CAMU trench upon disposal. This issue should be more thoroughly discussed.

Section 4.14, page 4-51, first paragraph, and Section 4.15, page 4-58. Only criterion 264.552(c)(2) is addressed in these sections (i.e., the short-term risks to human health and the environment from exposure to hazardous wastes or hazardous constituents resulting from remediation waste management). As described in 58 FR 8668, "the rationale for a CAMU decision will generally address only those criteria that are considered determinative for a given CAMU designation." Thus, depending on the scope of the CAMU, some or all of the seven CAMU decision criteria may be employed in the CAMU designation and approval process. However, since Section 15 provides a summary discussion of all seven decision criteria, it would appear that more than one criterion might be applicable to this discussion of other ERDF CAMU support units and operations. The text should discuss the possibility of using other criteria or provide a rationale for only addressing the risk criterion.

Section 4.14.1.3, page 4-53. The text states that after a waste container is emptied, it will be inspected for residual material to ensure that "no more than 0.3 percent of the rated container capacity" remains. It seems unlikely that a visual inspection conducted at the working face of the trench could accurately determine a residual of 0.07 cubic meter, or 0.1 cubic yard within a 24.5 cubic meter (32 cubic yard) container. The specific method of inspection to be used to make this quantitative determination should be explained.

Section 4.15.9, page 4-62, second paragraph, first sentence: Delete the redundant portion of the sentence, "at which operations". Also, it may be prudent to include the statement "during operations, ERDF personnel may deem it necessary to shut down due to site specific conditions".

SECTION 5.0

Section 5.1, page 5-1. The regulatory citation in the first sentence should be 40 CFR 264.552(e)(3)(i and ii).

Section 5.3.4, page 5-10, first paragraph: Rather than state that conclusions about the amount of recharge varies and then state only the conclusions of one research effort (Gee, 1987) who found it to be zero, state a range of values, zero can be one endpoint of the range.

Section 5.3.5.2.3, page 5-15, last paragraph: This last sentence in the paragraph does not come from the cited reference. Correct the source or remove the sentence.

Section 5.5, page 5-18. The regulation at 264.552(e)(3) specifies only general groundwater monitoring requirements at the CAMU. However, since site-specific technical aspects of installing and operating a groundwater monitoring system must be specified in the permit or order, the CAMU application should provide sufficient information and justification for the design and operation of such a system. Several aspects of the ERDF CAMU

trench groundwater monitoring system are deficient or not fully justified, as discussed below:

- **Location and screening depth of upgradient wells.** EPA guidance (1986 and 1992) discusses placement and screening considerations for background monitoring wells to ensure (1) that enough wells are installed far enough away from the waste management area to prevent being contaminated from the unit and (2) that the wells are screened at appropriate depths to adequately account for spacial variability in background water quality. The CAMU application specifies four preexisting background wells (299-W22-42, 299-W22-20, 299-W27-1, and 699-38-70). According to Figure 5-27, these wells are located approximately one-half mile upgradient from the CAMU trench (as located in Figure 4-1) western boundary. Well placement is justified to monitor 11 contaminant plumes emanating from the 200 Area West and migrating eastward across the CAMU trench area. However, the selected wells appear to be too distant from the CAMU to provide background groundwater quality at the unit's upgradient boundary as discussed in EPA guidance (1986 and 1992). Most existing plumes shown in Figures 5-16 through 5-26 have not migrated across the CAMU boundary. Thus, wells located directly in the known plumes will provide concentrations of contaminants in these plumes considerably higher than concentrations present at the CAMU's upgradient boundary. Upgradient well selection should be reassessed based on this consideration.

  Also, since no as-built well construction diagrams are provided for the selected preexisting wells, the appropriate screening intervals and depths cannot be evaluated. Screening for spacial variability of background groundwater quality should be addressed. As-built diagrams should also be provided.

- **Construction and maintenance documentation of currently designated (and constructed) upgradient and downgradient wells.** This information should be provided in the CAMU application to facilitate its review.

- **RCRA criteria used for evaluating the usefulness of designated, existing wells.** The text states that "three of the four [upgradient] wells were not constructed to RCRA well completion standards. Well construction of these three wells (shown in Table 5-3) is currently being examined to determine their ability to produce water samples of adequate quality." Well construction requirements are specified in 40 CFR 264.97(c) and in EPA guidance (1986 and 1992). These criteria should be referenced. The CAMU application should also provide a detailed discussion of the way the wells will be evaluated and proved acceptable.

- **Number and location of downgradient wells.** A discussion in Section 4.12 of the CAMU application indicates that "since the remediation waste disposed in the [ERDF CAMU] trench will be generated over a relatively long period of time, the entire trench will not be constructed at one time. Instead, the construction . . . will be conducted in stages." The CAMU application (Figure 5-27) indicates that only three downgradient wells are planned for the CAMU groundwater monitoring system. Placement of these wells, selected based on computer modeling, are to be at the far east boundary of the waste management unit and along the north and south margins of the unit about 0.5 kilometer from the far east boundary; this is the minimum number normally required for a RCRA interim status groundwater detection monitoring program (40 CFR 265.91[a][1] and [2]). However, if the trench is to be constructed and filled sequentially from west to east, wells located over 2,740 meters (9,000 feet) downgradient would not afford effective detection monitoring of the early stages of the trench. Additional downgradient wells should be located at regular intervals from west to east along the north and south margins of the trench. Perhaps the wells could be installed sequentially (from west to east) as the trench is extended and filled eastward, with well(s) also placed at the eastern margin of the first phase of construction (project W-296).

  Also, one well along the far east boundary of the trench may be insufficient. Based on the number and distribution of upgradient contaminants and the width of the trench (305 meters [1,000 feet]), a more extensive downgradient monitoring well network may be necessary. The computer model used for determining well placement may need to be reevaluated for its appropriateness.

- **Proposed length of screened interval for downgradient wells.** Based on Figure 5-28, it appears that the typical screened interval planned for the monitoring wells is 20 feet. As discussed in EPA guidance (1986 and 1992), the depth and length of screened intervals for downgradient wells should correspond to the depths and intervals for upgradient wells to ensure that similar hydrogeologic units are being monitored. The depths and lengths of screened intervals should be specified in the CAMU application for evaluation.

- **Indicator parameters for upgradient and downgradient wells.** Section 5.5.2 specifies that groundwater samples will be analyzed for three groups of parameters. However, it is not clear whether both upgradient and downgradient wells will be analyzed for the same sets of parameters. The text should be revised appropriately.

- **The use of Hydrostar™ sampling pumps.** Section 5.5.5 discusses using "Hydrostar™ sampling pumps or other dedicated sampling system." Table 5-3 shows the estimated depth to groundwater in excess of 300 feet. It should be noted that PRC's evaluation of the Hydrostar™ pumps during an operation and maintenance inspection (PRC 1993) noted that the pumps leaked and entrained air in the samples that potentially resulted in the collection of nonrepresentative groundwater samples from the wells observed. These wells were also screened at depths exceeding 200 feet. Historical pump performance information from previous Hanford Site groundwater monitoring programs and other pump types should be carefully evaluated before a specific pump is selected for the CAMU monitoring program.

- **The specification of analytical methods and practical quantitation limits.** Section 5.5.5.3 states that "samples will be analyzed from all groundwater monitoring wells in conformance with 40 CFR 265.92 and as specified in the contract for analytical support." However, the CAMU analytical program will be required to develop its own quality assurance project plan (QAPjP), providing specific data quality objectives, including practical quantitation limits for each parameter. This information is currently not present in the groundwater sampling and analysis plan (Appendix C2).

Section 5.5.1.1, page 5-19: The proposed ground water monitoring network is inadequate to monitor any flow of contaminants in a southerly direction from the ERDF. A well along the southern boundary of the ERDF should be substituted for either 699-SDF-9 or 699-34-61.

SECTION 6.0

Section 6.2.2.1, page 6-3. The text states that operation of the ERDF will not involve container storage. Although most of the remediation waste will be dumped into the ERDF trench, all remote handled category 3 radioactive and bulk waste that exceeds safety requirements will be containerized. The text in Section 3.1.3 states that a portion of the ERDF wastes will be containerized. This discrepancy should be addressed.

Section 6.2.2.2, page 6-3. The text states that no waste will be stored in tanks. Page 6-6, however, states that leachate collected from the trench will be stored in tanks. Since this leachate may be hazardous, these tanks should be inspected.

Section 6.2.2.8.3, page 6-5. The text states that a dust suppressant will be sprayed on the daily cover. While this is recommended, the type of dust suppressant that will be used should be specified; in addition, any environmental hazards characteristic of the dust suppressant should be described, and the methods to mitigate these hazards should be discussed in this section.

Section 6.2.2.8.4, page 6-5. The text does not specify an inspection schedule for the leachate collection system. The sumps should be inspected weekly as a check on the integrity of the liner. The sump systems should be inspected monthly. The aboveground piping should be inspected for leaking joints, and the performance of the control system should also be inspected.

Table 6-2 should also be modified to reflect these additions.

Section 6.3.1.4, page 6-7. Although the fire control system is adequate, capturing fire control water is not mentioned in the text. In the event of a fire, the fire control water could become contaminated. Therefore, the text should describe the way fire control water will be contained and treated if necessary.

Section 6.4.5, page 6-9, first bullet. Air monitoring will be performed with continuous air monitors (CAM). The text should describe specific CAMs that will be used. Because of the variety of expected radionuclides, the ERDF should employ alpha, beta-gamma, and tritium monitors. This would ensure that employee exposure to be as low as reasonably achievable and would help promote compliance with 40 CFR 61 and DOE Order 5400.5.

Section 6.4.5, page 6-9, second paragraph. Although fit tests are mentioned, the required medical surveillance and medical certification required as part of a respiratory protection program that includes respirators is not discussed. This should be discussed in the text since it is a requirement in 40 CFR 1910 and WAC 262-071.

SECTION 13.0

Section 13.6, page 13-3, first paragraph. This paragraph states that since the proposed ERDF CAMU site occurs in a relatively small portion of the Hanford Facility, it does not play a significant role in the overall ecology of the Hanford Facility. Size alone, however, does not determine whether this area plays a significant role in the overall ecology of the area. Specific results of the ecological survey performed by WHC to document habitat types and areas, wildlife associations and uses, available habitats in adjoining areas, and their carrying capacities should be described to support the conclusions presented in the text. It may be appropriate to refer to this information elsewhere in the regulatory package.

Section 13.11, page 13-5. This section discusses the relevance of the Toxic Substance Control Act (TSCA) to the CAMU. The paragraph does not specify whether or not polychlorinated biphenyls (PCB) or any other materials regulated under TSCA will be disposed of in the CAMU. Instead, it is stated that the "ERDF CAMU will meet all the EPA requirements as determined applicable by EPA." This section should identify whether PCBs or other TSCA-regulated material will be included at the CAMU and the TSCA regulations that apply to the unit.

SECTION 15.0

Section 15.2.1.1, page 15-2, first full paragraph: The ERDF CAMU will be located near/within an area containing sagebrush commonly used for nesting by the loggerhead shrike. Provide documentation supporting the conclusion of the second and third sentences or delete these sentences.

Section 15.2.1.3, page 15-3, last sentence: The paragraph discusses closure/post-closure design therefore this sentence is not applicable and should be deleted.

Section 15.2.1.6, page 15-5, second paragraph: Support documents should be referenced for the assumption that current technology does not exist to reduce toxicity and mobility of the contaminants in a cost effective manner. Focused feasibility studies have not yet been completed for 100 area waste sites.

Section 15.2.1.6.2, page 15-6: Paragraph 1 and 3 reference table 15-1 for cost comparisons. The correct table is 15-2.

Section 15.2.3, page 15-11: The first paragraph states that "ERDF soils are relatively uncontaminated". Clarify this statement.

Section 15.2.3.1, page 15-12, last paragraph: This paragraph fails to note that due to the limited sampling of each waste site, much of the waste may be classified as a mixed waste. Availability of a mixed waste disposal facility is very limited and disposal costs would likely be very high.

Section 15.2.3.2, pages 15-12 through 15-14: As a result of the public meetings for the ERDF, it is expected that a discussion of the BC control area be included in the ERDF package. Will this documentation be included elsewhere?

Section 15.2.5, pages 15-19 through 15-20: Another point to bring out concerning the ERDF CAMU would be having the facility built as waste projections are made for the operable unit RODs. This will guarantee readily

available disposal space during cleanup thereby expediting the timing of cleanup actions.

Section 15.2.6.1, pages 15-20 through 15-22: This section should also note that the operable unit managers may on a case by case basis choose to use treatment technologies at the waste sites to reduce toxicity, mobility or volume (ie soil washing).

Section 15.2.6.1, page 15-22, second paragraph. The text states that for those wastes that do not meet the ERDF CAMU waste acceptance criteria, treatment will be considered as a waste management alternative. This implies that wastes meeting the waste acceptance criteria will be managed at the ERDF. However, treatment alternatives will be considered during remedy selection at the operable units regardless of whether wastes are expected to meet the waste acceptance criteria. The text should be revised so that it does not imply that treatment will only be considered for wastes not meeting the waste acceptance criteria.

Section 15.2.7.1, page 15-23, third paragraph: The 100 and 300 areas would <u>not</u> be precluded from re-use/release if the waste were adequately treated in place to assure protectiveness (ie in-situ vitrification) though there would be some restrictions on land use.

Section 15.2.6.1, page 15-22, second paragraph. The text states that for those wastes that do not meet the ERDF CAMU waste acceptance criteria, treatment will be considered as a waste management alternative. This implies that wastes meeting the waste acceptance criteria will be managed at the ERDF. However, treatment alternatives will be considered during remedy selection at the operable units regardless of whether wastes are expected to meet the waste acceptance criteria. The text should be revised so that it does not imply that treatment will only be considered for wastes not meeting the waste acceptance criteria.

APPENDIX B

Section 1.3.1, page 18, 1st paragraph: Delaney et al.(1991) is cited as the source of the transmissivity values in the 200-Areas. The citation for the Selah interbed (10th line) is taken verbatim from Delaney (his page 3-16, 2nd paragraph, 10th line). However, cross checking to the table (Delaney's Table 3-1, page 3-5) shows a single value (not a "range from..to..") of 3x10E-5. Delaney cites a 1984 reference, Graham, et al. as the source of the data. Could the correct information be determined and included in this report? Is it a range of values? Is the single value 10E-3 or is it 10E-5?

APPENDIX D

GENERAL COMMENTS

The relationship between and the purpose of the Building Emergency Plan and Attachment B (RCRA Unit Planning Information and RCRA regulated unit contingency plan) of Appendix D should be clarified. Section 1.0 of the Building Emergency Plan says that this plan covers all of the ERDF area. Section B.1 of Attachment B indicates that the attachment covers the regulated unit and includes the CAMU trench. Attachment B should identify the regulated unit. It is not clear whether this includes the CAMU; a CAMU is not a "regulated unit" in the RCRA sense of the word (i.e., a surface impoundment, waste pile or landfill). An explanation of the regulated unit and the need for Attachment B should be provided.

The contingency plan included in this document for the ERDF CAMU does not include much unit-specific information. Most of the information is deferred until just before the receipt of remediation wastes at the CAMU. The completeness of this information should be reviewed and approved before the waste is received.

SPECIFIC COMMENTS

Section 3.0, page 9 of 47. This section states that remediation wastes to be managed at the CAMU consist of bulk soils and construction debris. Other sections in the application appear to indicate that there may be more types of waste handled at this unit. All wastes potentially managed at the unit should be included in the discussion in Section 3.0.

Section 5.3.2, page 20 of 47. This section states that once the emergency action coordinating team (EACT) is activated, DOE and Westinghouse Hanford Company will not have notification responsibilities. This section should identify how and when the EACT is notified.

APPENDIX E

Section 1.1.1, page 1. Regulations at 40 CFR 264.16(a)(2) require that the training program be directed by a person familiar with hazardous waste management procedures. Section 1.1.1 should clearly state that the Solid Waste Disposal Division manager, who is involved with the ERDF CAMU, satisfies these requirements.

Appendix 8-C.1, Hanford Facility Dangerous Waste Training Courses, page 29. The description of the training course, Building Emergency Plan Training-ERDF should include instruction on evacuation routes and implementation of the contingency plan.

REFERENCES

EPA 1986. RCRA Technical Enforcement Guidance Document. Office of Solid Waste and Emergency Response. OSWER 995001. U.S. Environmental Protection Agency, Washington, D.C. September.

EPA 1992. RCRA Ground-Water Monitoring: Draft Technical Guidance. Office of Solid Waste. EPA/530-R-93-001. U.S. Environmental Protection Agency, Washington, D.C. November.

PRC 1993. Operation and Maintenance Inspection, Final Report, 200 West Area Waste Management Area - 3, Hanford Facility, Richland, Washington. Prepared for the U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, Washington, D.C. By PRC Environmental Management, Inc., Seattle, Washington. February 8.